

2025



SPRERI
Striving for Excellence

SPRERI NEWSLETTER

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**Sardar Patel Renewable Energy Research Institute,
Anand, Gujarat, India - 388 120**

Sardar Patel Renewable Energy Research Institute (SPRERI), an autonomous organization based in Anand, Gujarat, has been at the forefront of renewable energy research, development, and commercialization since its establishment in 1979. Recognized nationally and internationally, SPRERI is known for its pioneering contributions to renewable energy technologies through fundamental research, pilot-scale demonstrations, and the commercialization of innovative solutions

Thrust Areas

The key focus areas of SPRERI include Renewable Energy, New and Alternative Energy Technologies, Energy Security, and Environmental Sustainability. SPRERI operates through four specialized divisions.

Divisions

Solar Energy

Bio-chemical Conversion

Thermo-chemical Conversion

Technology Transfer & Extension

The four divisions: Solar Energy, Bio-chemical Conversion, Thermo-chemical Conversion, and Technology Transfer are deeply involved in research, development, demonstration, and commercialization of advanced technologies across various fields of renewable energy, environmental sustainability, and climate change. Their work encompasses hydrogen technologies, carbon mitigation, solar thermal, solar photovoltaic, water remediation, biofuels, biomass-to-electricity, and the production of valuable byproducts through energy conversion and waste bioconversion. SPRERI is also actively engaged in the development of government policies and programs, providing training, capacity building, and extension support. Additionally, it offers consultancy services, business development assistance, conducts testing, evaluation, and certification of renewable energy technologies.

About Us



Legendary founders, Late Dr H M Patel and Late Mr Nanubhai Amin

The institute is recognized as scientific and industrial research organization by Department of Scientific and Industrial Research (DSIR), Bureau of Indian Standards (BIS), National Accreditation Board for Testing and Calibration Laboratories (NABL) and empaneled with Tata Institute of Social Sciences (TISS).

Vision

SPRERI aims to develop environmentally friendly renewable energy technologies that are efficient and economically sustainable for society.

Mission

To excel in research, development, and the commercial deployment of renewable energy technologies, while promoting environmentally sustainable solutions through education, training, and public-private partnerships for India and other developing global economies.

Board of Management

Shri Bhikhubhai B Patel Chairman	Chairman
Shri Manish S Patel Vice President, Charutar Vidya Mandal, Vallabh Vidyanagar	Member
Mr Sydney Lobo Sr Technical Advisor, Clean Tech Space, Mumbai	Member
Dr Datta Madamwar Scientific Advisor, CHARUSAT, Changa, Anand	Member
Ms Bhaktiben Shamal Joint Secretary EPD, Gujarat Government	Member
Dr K Narsaiah Assistant Director General (Process Engg.), Indian Council of Agricultural Research, New Delhi	Member
Dr D K Tuli Former Executive Director IOC R&D; & CEO Indian Oil Technologies Ltd and Chair DBT Energy Bioscience	Member
Dr Anuradda Ganesh Chief Technical Advisor and Director, Cummins Technologies India Ltd. and Ex-professor, Indian Institute of Technology, Mumbai	Member
Prof Satish B Agnihotri Professor, Centre for Technology Alternatives for Rural Areas (CTARA), IIT Bombay Associate	Member
Mr Apoorva Oza Chief Executive, Aga Khan Rural Support Programme, Ahmedabad	Member
Mr Vivek Amin CEO at Bomin Industries PVT. LTD Ahmedabad	Member
Dr A Mahesh Assistant Professor, C L Patel Institute of Studies and Research in Renewable Energy, Anand	Member
Dr Anil Kumar Dubey Director, SPRERI, Anand, Gujarat	Member Secretary

Research and Development

Solar-powered Off-grid, Battery free Refrigeration Storage System for Fisheries and Rural Cold Chains

SPRERI has developed an innovative solar-powered refrigerator integrated with cold thermal energy storage (CTES) for decentralized, **battery-free refrigeration**. The system has a storage capacity of 250 litres and is supported by an integrated thermal storage capacity of 80 MJ, enabling reliable cooling using solar energy alone. The system is powered by a 1.9 kWp solar PV array coupled with a 0.75 kW micro-inverter, operating without any electrical battery backup. During sunshine hours, the refrigeration compressor is directly driven by solar PV power to cool the chamber and simultaneously cool the CTES system by forming ice. These modules are strategically integrated along the sidewalls and base of the refrigerator chamber to minimize heat gain and maintain uniform temperature distribution. The stored cold energy from CTES is then released during non-solar hours, such as at night or during cloudy conditions, maintaining a storage temperature of around 0 °C. The system can sustain near-freezing temperatures

for up to 48 hours without compressor operation, ensuring uninterrupted refrigeration. This technology offers advantages such as elimination of batteries reduces cost and maintenance; dependency on purchased ice is removed; enhanced shelf life of perishable commodities; and reduced carbon emissions. The system is particularly suited for fisheries, dairy, horticulture, and rural micro-enterprises requiring reliable, off-grid cooling. The SPRERI

solar refrigerator is available for pilot deployment and technology transfer to manufacturing partners. It presents a scalable, sustainable solution for strengthening decentralized cold chains, reducing post-harvest losses, enhancing rural livelihoods and addressing the national clean energy and climate resilience goals.



Events

Green Spark: Quiz Competition

“Green Spark” Quiz Competitions on Renewable Energy and Environmental Awareness were organized at V & C Patel School on November 11, 2025 and M.S. Mistri School on November 25, 2025 to inspire higher secondary school students. The event aimed to enhance students’ knowledge of renewable energy technologies, energy conservation, and environmental protection. Participants enthusiastically answered thought-provoking questions and showcased their awareness of green innovations. Students were rewarded with 1st, 2nd and 3rd prizes to encourage spirit of learning among students, making it a fun and educational experience. The program successfully ignited young minds with the spark of sustainability-nurturing future champions of a cleaner, greener planet.



Quiz competition at V & C Patel School



Quiz competition at M. S. Mistri School

Events

Participation in National Event for Awareness of Renewable Energy Technologies

SPRERI continued its commitment to advancing renewable energy driven livelihoods and women-led entrepreneurship through active participation in key national and community platforms. The programme “Livelihood-Centric Technologies for Promotion of Women-Led Entrepreneurship in Uttar Pradesh” was held in Lucknow on 18 December 2025 to showcase market-ready green technologies capable of scaling women-run enterprises. Organized by Development Alternatives under the TAP-RISE (Technology Acceleration Platform) initiative, the event focused on enabling rural women to move beyond subsistence activities toward sustainable, non-traditional businesses. The program highlighted various renewable sources such as solar, wind, biogas, and biomass energy, and emphasized how these technologies can reduce dependence on conventional fossil fuels. The programme brought together about 110 participants, including innovators, development agencies, and institutional representatives, fostering knowledge exchange and collaboration. Extending its outreach to rural communities, SPRERI also participated in the “Gramsamvad” rural development fair at Timbharva, Santarampur. With nearly 2,000 villagers in attendance, the event served as a vibrant platform for live demonstrations, direct interaction with users, and awareness building on practical renewable energy applications. The initiative reinforced SPRERI’s commitment to inclusive growth, last-mile technology dissemination, and accelerating the transition toward sustainable rural futures.



Participation in national event and fair in rural areas

Events

Training program on Solar Dryer application in Rural areas

The Extension Division of SPRERI conducted a one-day training programme on “Solar Dryer Applications in Rural Areas” on December 22, 2025. Members of the Mahakali Sakhi Mandal from Ankalav Taluka, Anand district, enthusiastically participated, with around 30 women attending the hands-on session led by experts from the Solar Division. The training focused on addressing the challenges of traditional open sun drying, which is often slow, labor-intensive and dependent on weather conditions. Participants were introduced to SPRERI’s solar dryer as a practical, efficient solution that ensures faster drying, improved hygiene, and better quality of the final product, ultimately helping enhance market value. Beyond technology demonstration, the interaction emphasized confidence building and collective progress. The women were encouraged to explore cooperative approaches for value addition to agricultural produce and to view clean energy technologies as pathways to income generation. SPRERI reaffirmed its commitment to continue mentoring and supporting the Self-Help Group members in their journey toward entrepreneurship development and sustainable livelihoods.



**Training program on solar dryer applications
in rural area with Mahakali Sakhi Mandal**

Achievements/Invited Lectures/Visits

- SPRERI, in collaboration with ICAR–AICRP on Energy in Agriculture and Agro-based Industries, CIAE Bhopal, secured a design patent for its “Double-Glazed Solar Dryer for Drying Agricultural and Food Products” on October 8, 2025 with registration no. 463151-001, Class 15-03, dated 23 June 2025, under the Designs Act, 2000 and the Designs Rules, 2001.
- Dr Anil Kumar Dubey, Director, SPRERI was invited as a keynote speaker and chair of technical session on “Clean and Green Energy Technologies, Energy Transition” during 59th Annual Convention of Indian Society of Agricultural Engineers (ISAE) from November 10-12, 2025 organised at ICAR-CIAE Bhopal.
- Er Milan Sojitra, Associate Scientist, SET Division was awarded first prize for oral presentation on " Optical and Photo-thermal Performance of a Cost-effective Nano-fluid Derived from Waste Engine Oil for Solar Applications" presented at the International Symposium during the 59th Annual Convention of Indian Society of Agricultural Engineers (ISAE) during November 10-12, 2025 at ICAR-CIAE Bhopal.
- Dr Geeta Kumari, Principal Scientist & Head, TCC Division was invited as a keynote speaker for the Inaugural Function of National Seminar on “Recent Trends in Renewable Energy: Innovations, Challenges and Opportunities” on November 26, 2025, organized by Vadodara Institute of Education and Research (VIER), Vadodara, supported by Gujarat Council on Science and Technology (GUJCOST).
- Dr Anil Kumar Dubey, Director, SPRERI was invited as a panelist and also delivered a expert lecture on the topic “Biochar: Production and Applications” at the IWMI–Tata Partners’ Meet 2025, scheduled during December 4–6 at the NDDDB Campus, Anand, Gujarat. This milestone year marks 25 years of the IWMI–Tata Water Policy Research Program, a pioneering initiative driving impactful research and action across water, energy, agriculture, livelihoods, and ecosystem sustainability.

Publications, Conference Presentations and Training programs

Conferences/Webinar presentations

- B Soni, R K Singh, A K Dubey and G Kumari, “Steam Generation using Syngas generated from Fluidized Bed Gasification System” at 5th International Conference on Recent Advances in Bio Energy Research (ICRABR 2025), October 6-9, 2025. Sardar Swaran Singh National Institute of Bio-Energy (SSS-NIBE), Kapurthala, Punjab.
- B Soni, R K Singh, G Kumari, “Continuous Torrefaction of Agro-residues for Solid Biofuel Upgrading Process Performance and Energy Densification” at 5th International Conference on Recent Advances in Bio Energy Research (ICRABR 2025), October 6-9, 2025. Sardar Swaran Singh National Institute of Bio-Energy (SSS-NIBE), Kapurthala, Punjab.
- A Pawar, B Soni, R K Singh, G Kumari, “Feasibility Study on CO₂ Capture using Biomass-Ash: A Carbon Capture Approach” at Engineering Innovations For Agriculture 5.0 and the International Symposium on Mechatronics and Robotics in Pre and Post Production Agriculture, November 10-12, 2025, ICAR-CIAE, Bhopal.
- R K Singh, B Soni, G Kumari, S Makwana, “Development of a High- and Low-Temperature Shift Reactor System for Efficient Hydrogen Production” at Engineering Innovations for Agriculture 5.0 and the International Symposium on Mechatronics and Robotics in Pre and Post Production Agriculture, November 10-12, 2025. ICAR-CIAE, Bhopal.
- M Sojitra, A Joshi, M Dubey, “Optical and Photo-thermal Performance of a Cost-effective Nanofluid derived from Waste Engine Oil For Solar Application” at Engineering Innovations for Agriculture 5.0 and the International Symposium on Mechatronics and Robotics in Pre and Post Production Agriculture, November 10-12, 2025, ICAR-CIAE, Bhopal.

Upcoming Events

17th Open House Event

SPRERI is organizing its flagship annual event - 17th Open House on February 25-26, 2026 at Sardar Patel Renewable Energy Research Institute, Vallabh Vidyanagar, Anand, Gujarat 388120.



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SPRERI's 17th OPEN HOUSE 2026

Who Should Attend?

Open House is a flagship event of the institute to Showcase Renewable Energy Technologies. Students, Farmers, SHGs, Industries, Entrepreneurs, Stakeholders & Everyone interested in Renewable Energy can attend the event.

Chief Guest
Shri Praveen Chaudhary, IAS
District Magistrate & Collector, Anand

Open House Sub Event's

Technology Exhibition	Poster Competition	Quiz Competition
<ul style="list-style-type: none">• Live Demonstrations• Tech Showcase• Industry Interaction• Scalable Solutions	<ul style="list-style-type: none">• College Students can Participate• Registration is Free of Cost• Winner will be Awarded with a Handsome Award Money	<ul style="list-style-type: none">• Inter School Quiz Competition• Any one can Attend

Event Date
February 25-26, 2026
Time: 10:00 AM - 5:00 PM

Location
SPRERI, V.V. Nagar, Anand,
Gujarat

For Registration



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For more Details and Registration, please visit www.spreri.org

Let's work together to achieve net zero mission of country's future!

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